

### **Remarks/Arguments**

Claims 1-86 are pending in this Application. Claims 1-58 and 61-73 are being considered; Claims 59-60 and 74-86 are withdrawn from prosecution. In the Office Action mailed November 28, 2004, the Examiner:

1. rejected Claims 1-25, 27, 29-32, 44-56 and 61-64 under 35 U.S.C. § 102(b) as being anticipated by Schultz et al. (US Patent No. 6,004,617);
2. rejected Claims 1-7, 9-25, 27, 29, and 44-55 under 35 U.S.C. § 102(b) as being anticipated by Hayes et al. (US Patent No. 5,658,802);
3. rejected Claims 61-63 and 70-71 under 35 U.S.C. § 102(e) as being anticipated by Schleifer et al. (US Patent No. 6,309,828);
4. rejected Claims 26 and 28 under 35 U.S.C. § 103(a) as being unpatentable over Hayes et al. in view of Brennan (US. Patent No. 5, 814,700);
5. rejected Claims 26, 28, 57 and 58 under 35 U.S.C. § 103(a) as being unpatentable over Schultz et al. in view of Brennan;
6. rejected Claims 33-43 under 35 U.S.C. § 103(a) as being unpatentable over Schultz et al.; and
7. rejected Claims 64-69 and 72-73 under 35 U.S.C. § 103(a) as being unpatentable over Schleifer et al. (US Patent No. 6,309,828).

Applicants respectfully address the basis for the Examiner's rejections below.

#### ***Claim Rejections under U.S.C. § 102(b) – Claims 1-25, 27, 29-32, 44-56 and 61-64***

In numbered paragraph 4, Claims 1-25, 27, 29-32, 44-56 and 61-64 were rejected under 35 U.S.C. § 102(b) as being anticipated by Schultz et al. The Examiner states that Schultz et al. disclose an apparatus comprising a manifold (#110) having one or more outlets positioned to deliver chemicals to a substrate (#118) and a linear drive for moving the substrate below the manifold (Column 18, lines 7-23 and Fig. 1). Applicants respectfully disagree with such a statement and point out that *none* of the apparatus disclosed by Schultz et al. for the preparation and use of a substrate comprise a manifold. The Examiner is asked to provide factual evidence

that Schultz et al. disclose or suggest a manifold. In fact, reference numeral 110 of Schultz et al. is *not* a manifold, but is disclosed by Schultz et al. to be an array of eight RF magnetron sputtering guns separated and set in a circular arrangement for parallel employment. (Col. 18, ll. 4-11) Applicants also respectfully submit amended Claim 1 and amended Claim 56. Claims 1 and 56 have been amended to further define subject matter of the instant invention, including a substrate, manifold and linear drive, in which the substrate is for receiving one or more chemicals, having an upper surface, a lower surface, and one or more reaction sites; the manifold is disposed above the substrate, having at least one inlet and two or more outlets, the outlets being operable to deliver the one or more chemicals to at least one reaction site of the substrate; and, the linear drive is for moving the substrate substantially horizontally with respect to the manifold. Applicants respectfully point out that Schultz et al. do not teach or suggest each and every element of amended Claims 1 and 56. For example, the linear drive described by Schultz et al. and referenced by the Examiner moves rotationally with respect to disk 112 and RF magnetron sputtering guns 110. In addition, RF magnetron sputtering guns 110 do not have one inlet and two or more outlets operable to deliver one or more chemicals to a reaction site, nor do any other embodiments disclosed by Schultz et al. [See metal nozzle 242 of Fig. 6 and descriptions in Col. 12, lines 1-64 and Col. 22, ll. 1-63.] As such, Schultz et al. do not anticipate amended Claims 1 and 56 or any of their dependents. Applicants also respectfully submit amended Claims 2-16, 18-25, 27, 29-32, 44-45, 47-53, and 55, amended as to matters of form and to further define subject matter believed to be Applicants claimed invention. No new matter is introduced with these amendments. Applicants respectfully request entry and allowance of amended Claims 1-16, 18-25, 27, 29-32, 44-45, 47-53, and 55-56 and original Claims 46, and 54. Applicants request cancellation of Claim 17.

Applicants similarly point out that none of the apparatus disclosed by Schultz et al. for the preparation and use of a substrate comprise a mask of amended Claim 61. Claim 61 has been amended to describe a mask, including a non-reactive sheet having a top surface, a bottom surface, one or more through-holes that form an array, and one or more outlets disposed below the one or more through-holes, wherein the one or more through-holes are defined and positioned to work in cooperation with defined portions of a substrate, the defined portions of

the substrate being one or more wells of the substrate. Schultz et al. do not teach or suggest each and every element of amended Claim 61. As such, the reference of Schultz et al. does not anticipate amended Claim 61 or its dependent, amended Claim 64. Claim 64 has been amended as to matters of form and to further define subject matter believed to be Applicants' claimed invention. Applicants respectfully request entry and allowance of these claims and requests cancellation of Claims 62 and 63.

***Claim Rejections under U.S.C. § 102(b) – Claims 1-7, 9-25, 27, 29, 44-55***

In numbered paragraph 6, Claims 1-7, 9-25, 27, 29, and 44-55 were rejected under 35 U.S.C. § 102(b) as being anticipated by Hayes et al. The Examiner states that Hayes et al. disclose an apparatus comprising a manifold (#10), having one or more outlets (#20a-20l) positioned to deliver chemicals to a substrate (#80) and a linear drive (#84) for moving the substrate below the manifold. Applicants respectfully disagree with this statement and, in particular, point out that the apparatus disclosed by Hayes et al. does *not* comprise a manifold. The Examiner is asked to provide factual evidence that reference numeral 10 is a manifold and that Hayes et al. disclose or suggest a manifold. In fact, Hayes et al. discloses that reference numeral 10 is an array of fluid dispenser assemblies (20a-20l), each dispenser assembly contained within its own housing 40 and each having its own electro-mechanical ejection device 30. [See Fig. 1, Col. 3, ll. 57 through to Col. 4, ll. 47, and Abstract.] As such, because Hayes et al. do not teach or suggest each and every element of amended Claim 1. Applicants submit that Hayes et al. cannot anticipate amended Claim 1 or any of its dependents. Applicants respectfully request entry and allowance of amended Claim 1 and all its dependents, namely amended Claims 2-7, 9-16, 18-25, 27, 29, 44-45, 47-53, and 55 as well as original Claim 46 and 54.

***Claim Rejections under U.S.C. § 102(e) – Claims 61-63 and 70-71***

In numbered paragraph 7, Claims 61-63 and 70-71 were rejected under 35 U.S.C. § 102(e) as being anticipated by Schleifer et al. In the Office Action, the Examiner states that Schleifer et al. disclose a mask (purification plate, Fig. 1C) comprising a non-reactive sheet having a top and bottom surface and one or more through holes that form an array matching the

position on a substrate. Applicants respectfully disagree with this statement and ask the Examiner to provide factual evidence that purification unit 103 of Fig. 1C is a mask and that Schleifer et al. disclose or suggest the use of a mask. In fact, the purification unit 103 of Fig. 1C as disclosed by Schleifer et al. is *not* a mask. Instead, purification unit 103 of Fig. 1C is disclosed by Schleifer to be a unit for the transfer of nucleic acid molecules solutions from synthesis unit 2 to printing unit 4. [See Col. 8, ll. 32-40.] Furthermore, Schleifer et al. expressly teach away from including or using a mask with their invention. An example of this is shown below.

The present method provides an efficient means for arranging an array of nucleic acid molecules onto a substrate. Unlike conventional methods, *the present method does not rely on intricate masking/lithographic, protecting, and selective activation techniques to form an array, or labor-intensive methods for applying discrete aliquots of preformed molecules to the substrate.* [Col. 2, ll. 21-27, emphasis added.]

Because Schleifer et al. do not teach or suggest each and every element of amended Claim 61, Applicants submit that Schleifer et al. cannot anticipate amended Claim 61 or any of its dependents. Applicants respectfully request entry and allowance of amended Claim 61. Applicants also respectfully submit amended Claim 71, amended as to matters of form and to further define subject matter believed to be Applicants' claimed invention. Applicants respectfully request entry and allowance of these claims and request cancellation of Claim 70.

***Claim Rejections under U.S.C. § 103(a) – Claims 26 and 27***

In numbered paragraph 9 on page 9, Claims 26 and 28 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Hayes et al. in view of Brennan. In the Office Action, the Examiner states that Hayes et al. disclose a manifold (#10) having one or more outlets (#20a-20l) positioned to deliver chemicals to a substrate (#80) and a linear drive (#84) for moving the substrate below the manifold. Applicants respectfully submit amended Claims 26 and 28, amended as to matters of form and to further define subject matter believed to be Applicants' claimed invention. Amended Claims 26 and 28 depend from amended Claim 1, a claim, as discussed previously, that is not anticipated by Hayes et al., because Hayes, et al. do not teach each and every element of Claim 1. In addition, the combination of Brennan with Hayes et al.,

does not overcome this defect in Hayes et al., because the combination of Brennan and Hayes et al. still do not teach or suggest all the claim limitations of Applicants' amended Claim 1, such as a manifold. [See nozzle 44 in Fig. 4 of Brennan.] Moreover, there is no suggestion or motivation in either Brennan or Hayes et al. to make or use a manifold, nor is there any suggestion or motivation in either Brennan or Hayes et al. to modify or combine their teachings. Therefore, amended Claims 26 and 28 are not obvious over Hayes et al. in view of Brennan and amended Claims 26 and 28 are patentably distinguishable over the cited art. Entry and allowance of these amended claims are respectfully requested.

***Claim Rejections under U.S.C. § 103(a) – Claims 26, 28, 57 and 58***

In numbered paragraph 9 on page 10, Claims 26, 28, 57 and 58 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Schultz et al. in view of Brennan. In the Office Action, the Examiner states that Schultz et al. disclose an apparatus comprising a manifold (#110) having one or more outlets positioned to deliver chemicals to a substrate (#118) and a linear drive for moving the substrate below the manifold. Applicants respectfully submit that amended Claims 26, 28 depend from amended Claim 1, a claim, as discussed previously, that is not anticipated by Schultz et al., because Schultz, et al. do not teach each and every element of amended Claim 1. The combination of Brennan with Schultz et al., does not overcome this defect in Schultz et al., because the combination of Brennan and Schultz et al. still do not teach or suggest all the claim limitations of Applicants' amended Claim 1, such as a manifold. [See nozzle 44 in Fig. 4 of Brennan.] Moreover, there is no suggestion or motivation in either Brennan or Schultz et al. to make or use a manifold, nor is there any suggestion or motivation in either Brennan or Schultz et al. to modify or combine teachings. Therefore, amended Claims 26 and 28 are not obvious over Schultz et al. in view of Brennan and amended Claims 26 and 28 are patentably distinguishable over the cited art. Entry and allowance of these amended claims are respectfully requested.

Applicants also respectfully submit amended Claims 57 and 58, amended as to matters of form and to further define subject matter believed to be Applicants' claimed invention. Amended Claims 56 and 57 each include elements not suggested or taught by Schultz et al., alone or in combination with Brennan, such as a manifold. Moreover, there is no suggestion or

motivation in either Brennan or Schultz et al. to make or use a manifold, nor is there any suggestion or motivation in either Brennan or Schultz et al. to modify or combine teachings. Therefore, amended Claims 57 and 58 are not obvious over Schultz et al. in view of Brennan and amended Claims 57 and 58 are believed to be patentably distinguishable over the cited art. Entry and allowance of these amended claims are respectfully requested.

***Claim Rejections under U.S.C. § 103(a) – Claims 33-43***

In numbered paragraph 10, Claims 33-43 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Schultz et al. In the Office Action, the Examiner states that Schultz et al. teach a mask comprising various components compositions known in the art (Col. 19, ll. 37-41) and teaches the droplets deposited are charged and deposited onto a charged substrate (Col. 22, ll. 16-41). Applicants respectfully submit amended Claims 44-43 that depend from amended Claim 1. In addition, Applicants reiterate their previous position that amended Claim 1 is patentably distinguishable over Schultz et al., because Schultz et al. do not suggest or teach each and every element of amended Claim 1, such as a manifold. As such, Schultz et al. as a reference does not meet the requirements for obviousness. Moreover, there is no suggestion or motivation in Schultz et al. to make or use a manifold, nor is there any suggestion or motivation in Schultz et al. to modify its teachings to include a manifold. Therefore, amended Claims 33-43 are not obvious over Schultz et al. and are patentably distinguishable over the cited art. Entry and allowance of amended Claims 33-43 are respectfully requested.

***Claim Rejections under U.S.C. § 103(a) – Claims 64-69 and 72-73***

In numbered paragraph 11, Claims 64-69 and 72-73 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Schleifer et al. In the Office Action, the Examiner states that Schleifer et al. disclose a mask (purification plate, Fig. 1C) comprising a non-reactive sheet having a top and bottom surface and one or more through holes that form an array matching the position on a substrate. Applicants respectfully submit amended Claims 64-69 and amended Claims 72-73 that depend from amended Claim 61. In addition, Applicants reiterate their previous position that amended Claim 61 does not teach or suggest a mask and, thus, Schleifer et al. do not meet the requirements for obviousness. Moreover, there is no suggestion or

motivation in Schleifer et al. to make or use a mask, particularly because the reference teaches away from using masks with their invention. As such, there is no suggestion or motivation in Schleifer et al. to modify its teachings to include a mask. Therefore, amended Claims 64-69 and 72-73 are not obvious over Schleifer et al. and are patentably distinguishable over the cited art. Entry and allowance of these amended claims are respectfully requested.

### Conclusion

In light of the amendments, remarks and arguments presented above, Applicants respectfully submit that the pending claims in this Amendment are in condition for allowance. No new matter has been introduced with this Amendment. Favorable consideration for and allowance of all pending claims is therefore respectfully requested.

No additional fees are believed to be required with submission of this Amendment. If this is incorrect, Applicants hereby authorize the Commissioner to charge any fees, other than the issue fee, that may be required by this paper to Deposit Account 07-0153.

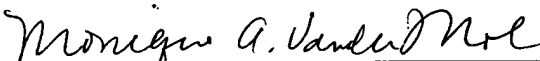
If the Examiner has any questions or comments, or if further clarification is required, it is requested that the Examiner contact the undersigned at the telephone number listed below.

Respectfully submitted,

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